

IN THE U.S. PATENT AND TRADEMARK OFFICE

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Examiner: Habte Mered

Applicant: Arnab DAS et al.

Title: A HYBRID TRANSMISSION METHOD FOR WIRELESS
COMMUNICATIONS

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APPELLANTS' BRIEF ON APPEAL

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APPELLANTS' BRIEF ON APPEAL

I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office and recorded at Reel 012284, Frame 0497.

II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS:

Claims 1-6, 8, 11-14 and 17-19 are pending in the application, with claims 1 and 14 being written in independent form. Claims 7, 9, 10, 15, 16 and 20 have been canceled.

Claims 1-5, 8, 11-14 and 17 remain finally rejected under 35 U.S.C. §103(a) based on a combination of Terry et al., U.S. Patent No. 6,996,082 ("Terry") and Odenwalder et al, U.S. Patent No. 6,804,220 ("Odenwalder"). Claim 6 was finally rejected under 35 U.S.C. §103(a) based on a combination of Terry, Odenwalder and Toskala et al, U.S. Patent No. 6,535,503 ("Toskala"). Claims 18 and 19 were finally rejected under 35 U.S.C. §103(a) based on a combination of Terry, Odenwalder and Malkamaki et al., U.S. Patent No. 5,577,024 ("Malkamaki"). Claims 1-6, 8, 11-14 and 17-19 are being appealed.

IV. STATUS OF AMENDMENTS:

A Request for Reconsideration ("Request") was filed on January 28, 2008. In an Advisory Action dated March 17, 2008, the Examiner stated that the Request was considered but did not place the application in condition for allowance.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

(i). Overview of the Subject Matter of the Independent Claims

The present invention is directed at transmission techniques which result in reduced delays and a more efficient use of available bandwidth. More specifically, independent claim 1 reads as follows (specification citations in parenthesis):

1. A method for transmitting information in a wireless communication system, the method comprising:

dividing a data communication channel into a plurality of time slots of equal duration (page 3, lines 23-25);

sub-dividing, on other than a time division basis, each of the plurality of time slots to comprise two or more sub-slots (page 3, line 26 to page 4, line 6), and

transmitting at least one transmission, among a number of transmissions, that comprises a number of contiguous sub-slots associated with at least two time slots, where the number of subslots may vary from timeslot to timeslot within each transmission (page 4, line 18-20 and lines 27-30 and page 5, lines 10-19) ; and

transmitting a separate control channel for each transmission (page 5, line 35 to page 6, line 5 and page 6, line 22 to page 7, line 15 and Table 2),

wherein the duration of the separate control channel is dependent upon the number of transmitted sub-slots (page 6, line 6 to page 7, line 15; Figure 2 and Table 2).

Independent claim 14 reads as follows:

14. A method for transmitting information in a wireless communication system, the method comprising:

dividing a data communication channel into a plurality of time slots of equal duration according to a time division multiple access scheme (page 3, lines 23-25 and page 4, lines 7-14);

sub-dividing each of the plurality of time slots to comprise two or more sub-slots according to a code division multiple access scheme(page 3, line 26 to page 4, line 6);

transmitting at least one transmission, among a number of transmissions, that comprises a number of contiguous sub-slots associated with at least two time slots, where the number of subslots may vary from timeslot to timeslot within each transmission (page 4, line 18-20 and lines 27-30 and page 5, lines 10-19); and

transmitting a separate control channel for each transmission (page 5, line 35 to page 6, line 5 and page 6, line 22 to page 7, line 15 and Table 2) (page 5, line 35 to page 6, line 5 and page 6, line 22 to page 7, line 15 and Table 2),

wherein the duration of the separate control channel is dependent upon the number of transmitted sub-slots (page 6, line 6 to page 7, line 15; Figure 2 and Table 2).

In order to make the overview set forth above concise the disclosure that has been included, or referred to, above only represents a portion of the total disclosure set forth in the Specification that supports the independent claims.

(ii). The Remainder of the Specification Also Supports the Claims

The Appellants note that there may be additional disclosure in the Specification that also supports the independent and dependent claims. Further, by referring to the disclosure above the Appellants do not represent that this is the only evidence that supports the independent claims nor do Appellants necessarily represent that this disclosure can be used to fully interpret the claims of the present invention. Instead, this disclosure is an overview of the claimed subject matter.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL:

Appellants seek the Board's review and reversal of the rejection of claims 1-5, 8, 11-14 and 17 under 35 U.S.C. §103(a) based on a combination of Terry and Odenwalder, claim 6 under 35 U.S.C. §103(a) based on a combination of Terry, Odenwalder and Toskala and claims 18 and 19 under 35 U.S.C. §103(a) based on a combination of Terry, Odenwalder and Malkamaki.

VII. ARGUMENTS:

A. The Section 103 Rejections of Claims 1-5, 8, 11-14 and 17

Claims 1-5, 8, 11-14 and 17 were rejected under 35 U.S.C. §103(a) based on a combination of Terry et al., U.S. Patent No. 6,996,082 ("Terry") and Odenwalder et al, U.S. Patent No. 6,804,220 ("Odenwalder"). Appellants respectfully disagree and traverse these rejections for at least the following reasons.

Neither Terry nor Odenwalder taken separately, or in combination, discloses or suggests the transmission of a separate control channel for each [data] transmission as in claims 1-5, 8, 11-14 and 17.

In the Office Action the Examiner acknowledges that Terry does not disclose a separate control channel for each transmission. To make up for this deficiency the Examiner relies upon Odenwalder. However, the excerpts from Oldenwalder relied on by the Examiner do not appear to disclose separate control channels for each transmission. Instead, it appears that Oldenwalder discloses a known technique of associating a "forward" control channel with a "forward" data channel. There is no disclosure of a separate channel for each transmission.

In more detail, as is known by those skilled in the art, a data channel can include a number of transmissions. Realizing this, the Appellants discovered methods for transmitting a separate control channel for each transmission within a data channel, for example. This is distinct from the known technique, illustrated by Oldenwalder, of associating a forward control channel with a forward data channel. Said another way, Oldenwalder at most discloses associating the same control channel with every transmission within

the channel instead of associating a separate (i.e., distinct) control channel for each transmission.

In the Advisory Action the Examiner takes the position that the phrase “separate control channel” does not mean “different” control channel. Appellants disagree. As the Examiner knows well, any interpretation adopted by the Examiner must be reasonable and consistent with the specification, *In re Hyatt*, 54 USPQ 2d 1664, 1667 (Fed .Cir. 2000). Interpreting the phrase “separate control channel” as not meaning “different” is neither reasonable nor consistent with the specification.

For example, on page 6 of the specification, beginning at line 21, “separate signaling blocks 251-254 for each corresponding separate transmission 227-230, respectively, in F-PDCH 210” (as shown in Figure 2) are described. It is clear from this description and Figure 2 that the separate signaling blocks 251-254 are separate, different control channels.

Accordingly, it is respectfully requested that the members of the Board reverse the decision of the Examiner and allow claims 1-5, 8, 11-14 and 17.

B. The Section 103 Rejection of Claim 6

Claim 6 was rejected under 35 U.S.C. §103 (a) based on the combination of Terry, Odenwalder and Toskala. Appellants respectfully disagree for at least the following reasons.

Appellants note that claim 6 depends on claim 1 and is therefore patentable over the combination of Terry, Odenwalder and Toskala for the reasons set forth above with respect to claim 1 because Toskala does not overcome the deficiencies of Terry and Odenwalder.

Accordingly, Appellants respectfully request that the members of the Board reverse the decision of the Examiner and allow claim 6.

C. The Section 103 Rejections of Claims 18 and 19

Claims 18-19 were rejected under 35 U.S.C. §103(a) based on the combination of Terry, Odenwalder and Malkamaki. Appellants respectfully disagree for at the following reasons.

Appellants note that claims 18-19 depend on claim 1 and are, therefore, patentable over the combination Terry, Odenwalder and Malkamaki for the reasons set forth above with respect to claim 1 because Malkamaki does not overcome the deficiencies of Terry and Odenwalder.

Accordingly, Appellants respectfully request that the members of the Board reverse the decision of the Examiner and allow claims 18 and 19.

Conclusion:

Appellants respectfully request that members of the Board reverse the decision of the Examiner and allow claims 1-6, 8, 11-14 and 17-19.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3777 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A method for transmitting information in a wireless communication system, the method comprising:

dividing a data communication channel into a plurality of time slots of equal duration;

sub-dividing, on other than a time division basis, each of the plurality of time slots to comprise two or more sub-slots, and

transmitting at least one transmission, among a number of transmissions, that comprises a number of contiguous sub-slots associated with at least two time slots, where the number of subslots may vary from timeslot to timeslot within each transmission; and

transmitting a separate control channel for each transmission,

wherein the duration of the separate control channel is dependent upon the number of transmitted sub-slots.

2. The method according to claim 1, wherein each of the two or more contiguous sub-slots is separately transmitted according to a code division multiple access scheme.

3. The method according to claim 2 wherein, in any one of the plurality of time slots, each of a plurality of transmissions are separately coded and carried in a separate sub-slot simultaneously in such time slot.

4. The method according to claim 3 wherein each of the plurality of transmissions correspond to a separate user of the wireless communication system.

5. The method according to claim 3, wherein each of the plurality of transmissions correspond to separate transmissions of a single user of the wireless communication system.

6. The method according to claim 1, wherein each of the two or more sub-slots within a particular time slot corresponds to a different frequency according to a frequency division multiple access scheme.

7. (Cancelled)

8. The method according to claim 1, wherein the communication channel comprises time slots each having a duration of 1.25 milliseconds and wherein each of the time slots comprises at least two sub-slots.

9. (Cancelled)

10. (Cancelled)

11. The method according to claim 1, wherein the communication channel is a forward packet data channel (F-PDCH), wherein information is transmitted as encoder packets in the forward packet data channel (F-PDCH), and wherein the separate control channel is a forward secondary packet data control channel (SPDCCH).

12. The method according to claim 11, wherein the forward secondary packet data control channel (SPDCCH) includes:

a sub-slot start field for identifying a sub-slot within a time slot in which a particular transmission starts; and

a sub-slot count field for identifying the total number of sub-slots that carry the particular transmission.

13. The method according to claim 11, wherein a plurality of forward secondary packet data control channels (SPDCCH) correspond to a plurality of simultaneous transmissions on the forward packet data channel (F-PDCH), and wherein each of the plurality of secondary packet data control channels (SPDCCH) identifies a sub-slot start position within a time slot in which a particular transmission starts.

14. A method for transmitting information in a wireless communication system, the method comprising:

dividing a data communication channel into a plurality of time slots of equal duration according to a time division multiple access scheme;

sub-dividing each of the plurality of time slots to comprise two or more sub-slots according to a code division multiple access scheme;

transmitting at least one transmission, among a number of transmissions, that comprises a number of contiguous sub-slots associated with at least two time slots, where the number of subslots may vary from timeslot to timeslot within each transmission; and

transmitting a separate control channel for each transmission,

wherein the duration of the separate control channel is dependent upon the number of transmitted sub-slots.

15. (Cancelled).

16. (Cancelled)

17. The method according to claim 1, wherein bandwidth in the communication channel is allocated on a fractional basis to carry a plurality of transmissions using a combination of a variable number of contiguous sub-slots and a variable number of contiguous time slots.

18. The method according to claim 1, wherein transmissions within the communication channel include two or more transmissions selected from the group consisting of new transmissions, retransmissions, acknowledgements (ACKs), negative acknowledgements (NACKs), and multi-level ACK/NACK message corresponds to multi-level ACK/NACK messages.

19. The method according to claim 18, wherein a multi-level ACK/NACK message corresponds to multiple transmissions that end within the same time slot.

20. (Cancelled).

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.